BRIGHTEK

BRIGHTEK (EUROPE) LIMITED

Brighten Up The World With LED!

ISO/TS 16949:2009 BS EN ISO 14001:2004 QC 080000 IECQ HSPM

PRODUCT DATASHEET

- ▶ PTH Lamp
- ▶ 3mm Cylindrical 3.8t
- ▶ Sky White (>9000K)

Release Date: 23 October 2015 Version: A1.2

N0W16L95ZR (Bulk)
N0W16L95ZRT (Taping)

3mm Cylindrical Lamp

3mm Cylindrical Lamp

RoHS Compliant

FEATURES:

- **Package:** PTH Lamp 3mm Cylindrical 3.8t
- **Forward Current:** 20mA
- **Forward Voltage (typ.):** 3.2V
- **Luminous Intensity (typ.):** 500mcd @20mA
- **Colour:** Sky White
- **Colour Temperature:** 6500-71200K
- **Viewing angle:** 150°
- **Electrostatics Discharge (ESD):** 200V
- **Materials:**
  - Die: InGaN
  - Resin: Epoxy (Water Clear)
- **Operating Temperature:** -40~+85°C
- **Storage Temperature:** -40~+100°C
- **Grouping parameters:**
  - Forward voltage
  - Luminous intensity
  - CIE Chromaticity
- **Soldering methods:** Hand; Wave Soldering (DIP)
- **Preconditioning:** acc. to JEDEC Level 3
- **Packing:** 500pcs/Bulk; 2000pcs/Taping

APPLICATIONS:

- Indicator
- Switch
- Signal Light

CHARACTERISTICS:

Absolute Maximum Characteristics (Ta=25°C)

Parameter	Symbol	Ratings	Unit
Forward Current	I_F	30	mA
Peak Forward Current Duty 1/10@1KHz	I_{FP}	100	mA
Reverse Current @5V	I_R	10	μA
Power Dissipation	P_D	85	mW
Electrostatics Discharge	ESD	2000	V
Operating Temperature	T_{OPR}	-40~+85	°C
Storage Temperature	T_{STG}	-40~+100	°C

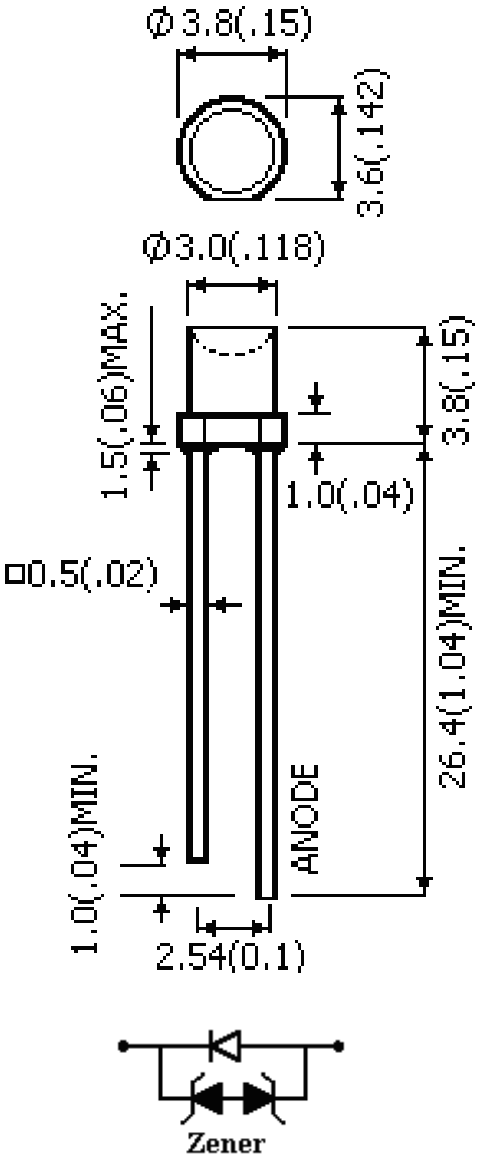
Electrical & Optical Characteristics (Ta=25°C)

Parameter	Symbol	Values			Unit	Test Condition
		Min.	Typ.	Max.		
Forward Voltage	V_F	2.9	3.2	3.5	V	I_F=20mA
Luminous Intensity	I_V	310	500	1000	mcd	I_F=20mA
Chromaticity Coordinates	X	---	0.3000	---	---	I_F=20mA
	Y	---	0.3000	---		
Colour Temperature	CCT	5600	7600	71200	K	I_F=20mA
Viewing Angle	$2\theta_{1/2}$	---	150	---	deg	I_F=20mA

1. Luminous intensity (I_V) ±15%, Forward Voltage (V_F) ±0.1V

OUTLINE DIMENSION:

Package Dimension:



1. All dimensions are in millimetre (mm).
2. Tolerance ±0.25mm, unless otherwise noted.

BINNING GROUPS:

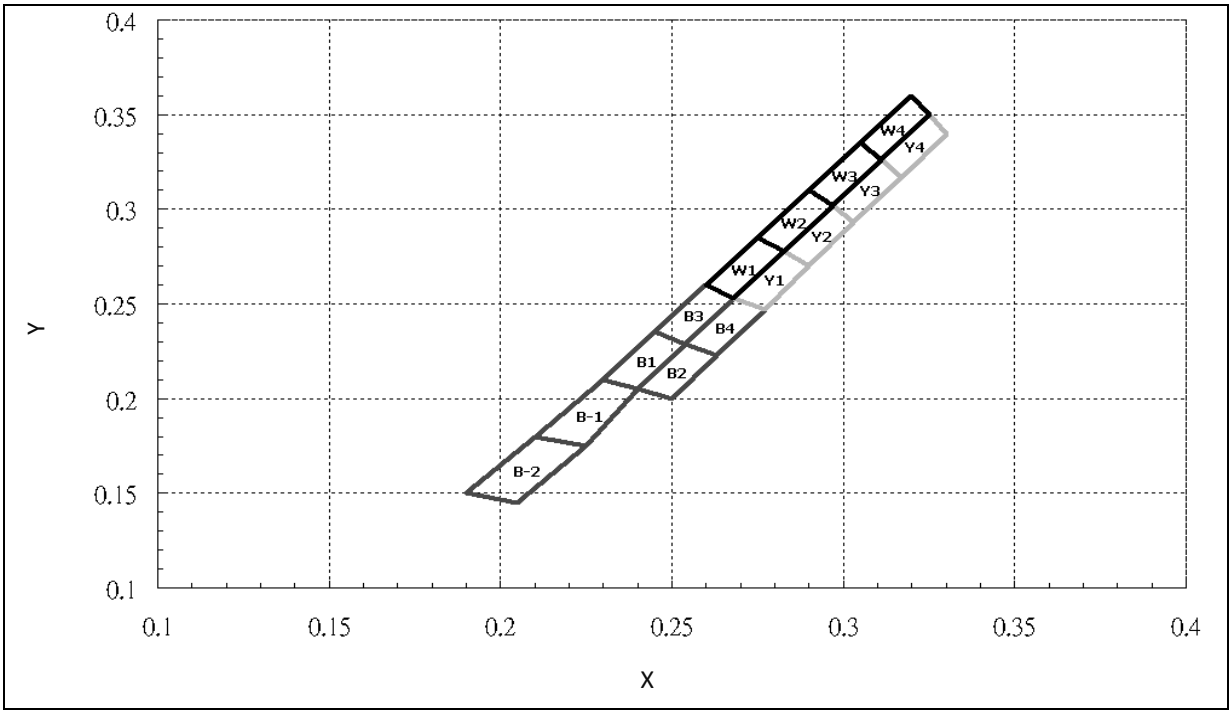
Forward Voltage Classifications (I_F = 20mA):

Code	Min.	Max.	Unit
J	2.8	3.0	V
K	3.0	3.2	
L	3.2	3.4	
M	3.4	3.6	

Luminous Intensity Classifications (I_F = 20mA):

Code	Min.	Max.	Unit
13	310	460	mcd
14	460	690	
15	690	1000	

CIE CHROMATICITY DIAGRAM:

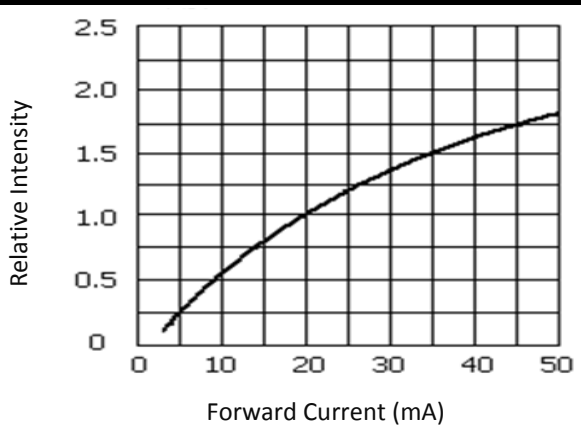


Chromaticity Coordinates Classifications (I_F = 20mA):

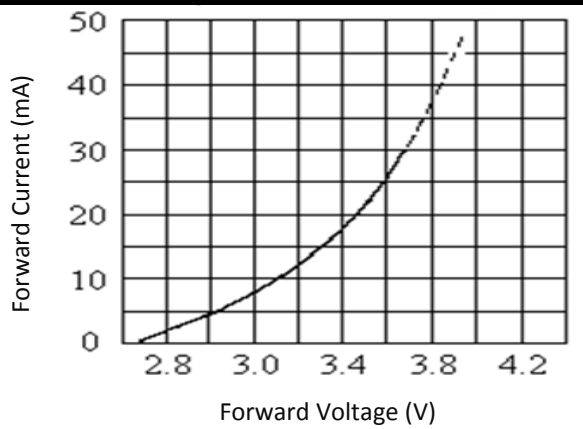
	1		2		3		4	
	X	Y	X	Y	X	Y	X	Y
B-1	0.2100	0.1800	0.2300	0.2100	0.2400	0.2050	0.2250	0.1750
B-2	0.1900	0.1500	0.2100	0.1800	0.2250	0.1750	0.2050	0.1450
B1	0.2300	0.2100	0.2450	0.2350	0.2540	0.2290	0.2400	0.2050
B3	0.2450	0.2350	0.2600	0.2600	0.2680	0.2530	0.2540	0.2290
B2	0.2400	0.2050	0.2540	0.2290	0.2630	0.2230	0.2500	0.2000
B4	0.2540	0.2290	0.2680	0.2530	0.2770	0.2470	0.2630	0.2230
W1	0.2600	0.2600	0.2750	0.2850	0.2830	0.2780	0.2680	0.2530
W2	0.2750	0.2850	0.2900	0.3100	0.2970	0.3020	0.2830	0.2780
W3	0.2900	0.3100	0.3050	0.3350	0.3110	0.3260	0.2970	0.3020
W4	0.3050	0.3350	0.3200	0.3600	0.3250	0.3500	0.3110	0.3260
Y1	0.2680	0.2530	0.2830	0.2780	0.2900	0.2700	0.2770	0.2470
Y2	0.2830	0.2780	0.2970	0.3020	0.3030	0.2930	0.2900	0.2700
Y3	0.2970	0.3020	0.3110	0.3260	0.3170	0.3170	0.3030	0.2930
Y4	0.3110	0.3260	0.3250	0.3500	0.3300	0.3400	0.3170	0.3170

ELECTRO-OPTICAL CHARACTERISTICS:

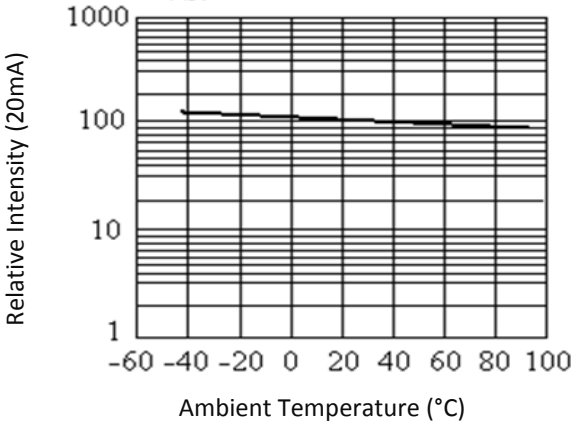
Relative Intensity v.s. Forward Current



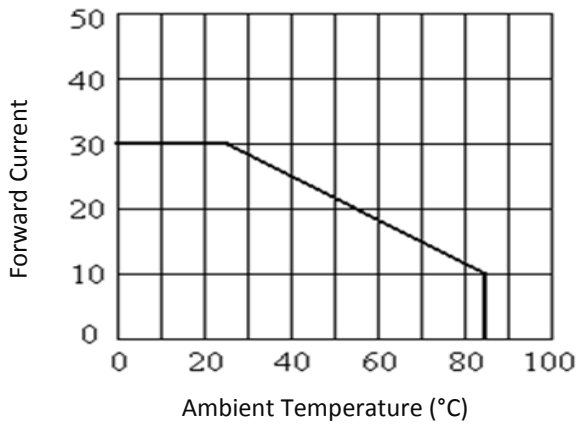
Forward Current v.s. Forward Voltage



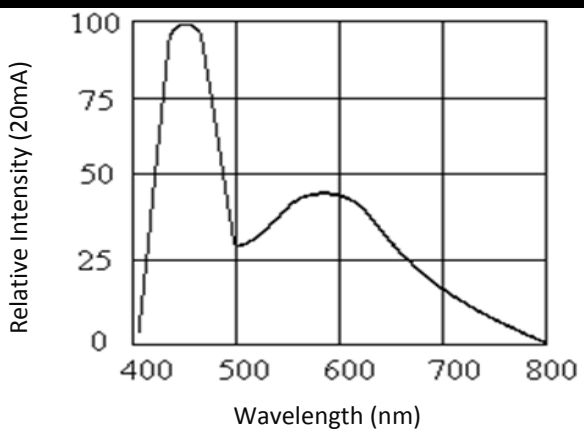
Relative Intensity v.s. Temperature



Forward Current v.s. Temperature



Relative Intensity v.s. Wavelength

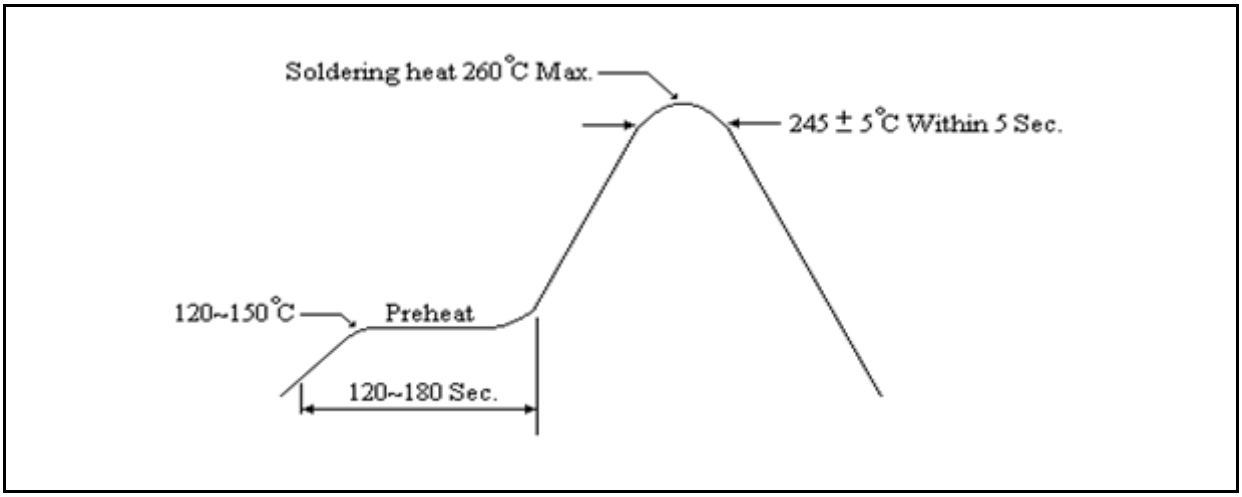


RECOMMENDED SOLDERING PROFILE:

Hand Solder (Solder Iron):

- Temperature at tip of iron: 300°C Max. (25W Max.).
- Soldering Time: 3 seconds ± 1 sec.
- Maximum reflow soldering: 1 time.

Wave / Soldering Heat (DIP):



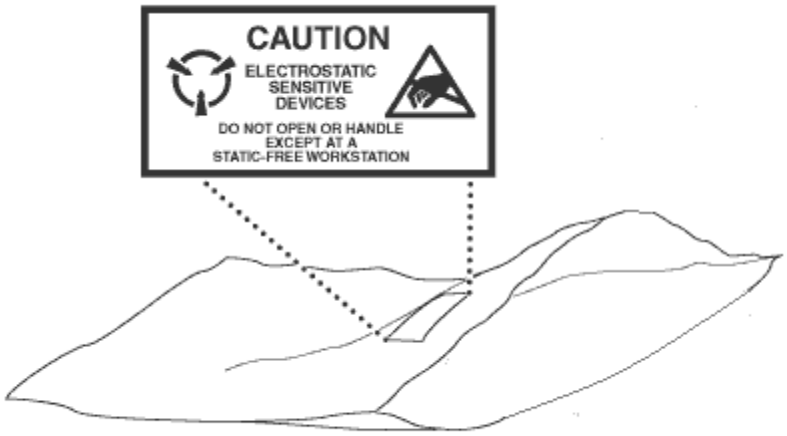
Note:

1. Maximum reflow soldering: 1 time.
2. Before, during, and after soldering, should not apply stress on the components and PCB board.

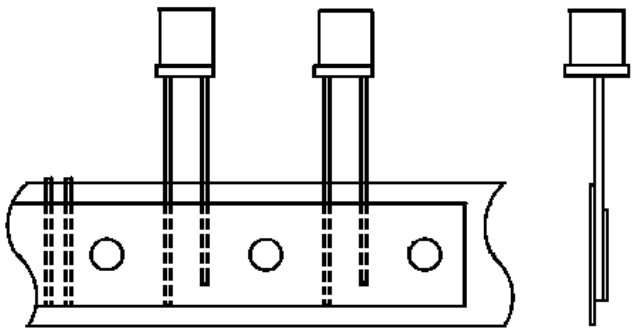
PACKING SPECIFICATION:

Reel Dimension:

500pcs/Bulk



2000pcs/Taping



PRECAUTIONS OF USE:

Storage:

It is recommended to store the products in the following conditions:

- Humidity: 60% R.H. Max.
- Temperature: 5°C~30°C (41°F ~86°F).

Shelf life in sealed bag: 12 month at 5°C~30°C and <60% R.H.

Once the package is opened, the products should be used within a week. Otherwise, they should be kept in a damp-proof box with descanting agent and apply baking at 60°C±5°C for 15hrs before use.

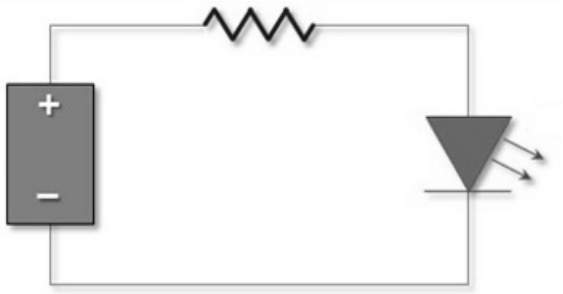
Baking:

It is recommended to bake the LED before soldering if the pack has been unsealed for longer than 24hrs. The suggested baking conditions are as followings:

- 70±3°C x 24hrs and <5%RH, taped / reel package.
- 100±3°C x 2hrs, bulk (loose) package.
- 130±3°C x 30min, bulk (loose) package.

It's normal to see slight color fading of carrier (light yellow) after baking in process.

Testing Circuit:



Must apply resistor(s) for protection (over current proof).

Cleaning:

Use alcohol-based cleaning solvents such as isopropyl alcohol to clean the LED carrier / package. Avoid putting any stress force directly on to the LED lens.

ESD (Electrostatic Discharge):

Static Electricity or power surge will damage the LED. Use of a conductive wrist band or anti-electrosatic glove is recommended when handing the LED all time. All devices, equipment, machinery, work tables, and storage racks must be properly grounded.

In the events of manual working in process, make sure the devices are well protected from ESD at any time.

REVISION RECORD:

Version	Date	Summary of Revision
A1.0	04/08/2015	Datasheet set-up.
A1.1	21/09/2015	Update solder profile.
A1.2	23/10/2015	Revise diode drawing direction.